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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/470,976	12/23/1999	MOTOH ASAKURA	3007/48504	6843

7590 04/12/2002

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EXAMINER
SCHECHTER, ANDREW M

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 04/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/470,976	ASAKURA ET AL.	
	Examiner	Art Unit	
	Andrew Schechter	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 January 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *5 and 6* is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Response to Arguments

2. Applicant's arguments filed 30 January 2002 have been fully considered but they are not persuasive.

The applicants state that neither *Asakura* nor *Kubota* discloses a second optical rotation layer disposed as in the present invention. The previous office action agreed with this statement, noting that *Asakura* disclosed a light-polarizing device in its place.

The applicants note "that the Office Action alleges that optical rotators are well known in the art. However, ... it is not seen how this allegation of optical rotators being well known in the art renders the claimed invention obvious..." [p. 5] This misstates the case for obviousness made in the office action. The office action took official notice (i.e. did not cite a reference to support the statement) that "it would have further been obvious to use a [sic] optical rotation layer in place of the absorbing polarizer to produce the S-polarized light needed for the display. Both ... are well-known in the art, and optical rotators have the advantage of not discarding half the intensity of the light as the latter do. Motivated by this better efficiency, it would have been obvious to use an optical rotator in the device of *Asakura* in view of *Kubota* to obtain the needed S-

polarized light." [office action 10/3/01, p.3] The applicants did not traverse the examiner's finding that optical rotators and absorbing polarizers are well-known in the art, nor that it would be obvious to use an optical rotator in place of an absorbing polarizer in this context of producing the S-polarized light for the display, nor that there is a motivation to do so based on improving the efficiency of the device's light usage. Since these statements were not traversed by the applicants, they are now assumed to be admitted prior art.

Finally, *Asakura* is appropriate as a primary reference and its combination with *Kubota* (and the optical rotation layer as discussed above) is appropriate for an obviousness rejection under 35 U.S.C. 103(a) as previously set forth. The previous rejections are therefore sustained below.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Asakura et al.,* U.S. Patent No. 5,999,314 in view of *Kubota et al.,* U.S. Patent No. 5,398,127.

Asakura, in Fig. 2, discloses a very similar device to that of the present Fig. 1 (representing the present claims 1 and 2). *Asakura* shows a display system comprising

a transparent plate [1A], a liquid crystal display [6], a light-transmittable reflection film [9], and a first optical rotation layer to rotate polarization by 90° [2]. However, the devices are different in two respects:

A) *Asakura's* LCD [6] does not necessarily produce light at 45° to the vertical axis of the image plane, and

B) rather than a second optical rotation layer to rotate that 45° light to S-polarized light (as 7 in the present invention does), *Asakura* discloses a light-polarizing device [7A] (presumably an absorbing polarizer) to block P polarized light and allow only S to proceed to the windshield.

However, it would have been obvious to one of ordinary skill in the art to modify the device of *Asakura* to make the present invention, motivated by the teaching of *Kubota*. *Kubota* discloses [in Fig. 2, as conventional prior art] a twisted nematic LCD having rubbing directions at 45° to the vertical axis of the image plane (which requires the output light of the LCD to be at 45°, due to the nature of the TN device), and motivates this angle for the conventional TN device by saying the "reason that the rubbing directions RD1, RD2 are set at 45 degrees to the gate and source lines 12, 13 is to uniformly adjust the contrast of the image displayed on the entire picture element 14." [col. 2, lines 64-68] Based on this, using a conventional TN LCD producing light at 45° in the device of *Asakura* would have been obvious to one of ordinary skill in the art.

Then, it would have further been obvious to use a optical rotation layer in place of the absorbing polarizer to produce the S-polarized light needed for the display. Both optical rotators and absorbing polarizers are well-known in the art, and optical rotators

have the advantage of not discarding half the intensity of the light as the latter do. Motivated by this better efficiency, it would have been obvious to use an optical rotator in the device of *Asakura* in view of *Kubota* to obtain the needed S-polarized light.

For these reasons, claims 1 and 2 are not patentable. Similarly comparing *Asakura's* Fig. 1 with the present claims 3 and 4 (and the present Fig. 2), claims 3 and 4 are also unpatentable for analogous reasons.

Allowable Subject Matter

5. Claims 5 and 6 are allowed.

The prior art does not teach having the display light with an angle of 45° relative to the vertical axis of the image plane, having the light reflect at Brewster's angle to the observer, and then having the un-reflected beam rotated by an angle of 45° to become P polarized light which can then pass out of the transparent plate without reflection. Claims 5 and 6 are therefore allowed.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (703) 306-5801. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Sikes can be reached on (703) 308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 746-4711 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

AS

Andrew Schechter
April 9, 2002

TOAN TON
PRIMARY EXAMINER